

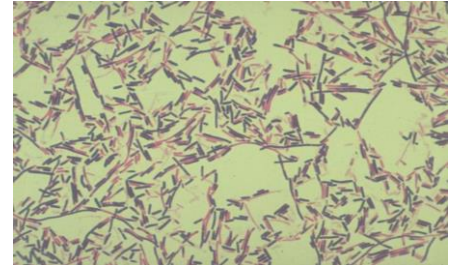


# Food safety advice

## Clostridium perfringens

### The Germ

*Clostridium perfringens* is a type of food-borne illness. Spores from these bacteria survive cooking, and germinate during slow cooling or unrefrigerated storage. Poisoning by this organism is mainly, but not exclusively associated with meat and poultry, and can occur in schools, hospitals, factories and catering establishments.



The organism is found in low numbers in many foods, particularly meat and poultry and their products. It is also widely distributed in the environment and frequently occurs in the intestines of humans and many domestic and feral animals. Spores of the organism persist in soil, sediments, and areas subject to human or animal faecal pollution.



Unlike many other types of bacteria that cause food-borne disease, *Clostridium perfringens* is not completely destroyed by ordinary cooking. This is because it produces heat-resistant spores. The bacteria are killed at cooking temperatures, but the spores they produce are able to survive brief heating to 100°C and may actually be stimulated to germinate by the heat. If the food is allowed to cool slowly, the bacteria produced when the spores germinate multiply rapidly. Unless the food is reheated so that it is piping hot (to at least 75°C), the bacteria will survive. After ingestion, if there are sufficient numbers present, the bacteria will produce toxins and the toxins will cause symptoms.

Foods most likely to be associated with *Clostridium perfringens* food poisoning are those that are cooked slowly in large quantities and left to stand for a long time at room temperature. It is particularly associated with gravies, cooked meat dishes, stews, pies and very large joints of meat and poultry. Under optimal growth conditions a bacterial population can double in size every 10 – 12 minutes.



# Food safety advice

## The Illness

The common form of *Clostridium perfringens* poisoning is characterized by intense abdominal cramps and diarrhoea, which begin between 8 and 22 hours after consumption of foods containing large numbers of these bacteria. It may also occasionally cause nausea but rarely causes vomiting or fever. The illness is usually over within 24 hours but less severe symptoms may persist in some individuals for 1 or 2 weeks. The illness can be fatal amongst the elderly due to dehydration and other complications.

## Diagnosis

*Clostridium perfringens* poisoning is diagnosed by its symptoms and the typical delayed onset of illness. Diagnosis is confirmed by detecting the toxin in the faeces of patients. Bacteriological confirmation can also be done by finding exceptionally large numbers of the causative bacteria in implicated foods or in the faeces of patients.

## Prevention

- Good temperature control e.g.:
  1. Cut meat into smaller portions before cooking,
  2. Food that is not intended for immediate consumption should be cooled within 90 minutes and then refrigerated **or** held at a minimum temperature of 63°C until it is consumed.
  3. Use a temperature probe to ensure that food is cooked thoroughly to 75°C or above and refrigerated to 8°C or below.
- Prevent cross contamination of raw and cooked/ready to eat foods
- Careful washing of vegetables.
- Regular cleaning of food areas using sanitizer, for use in direct food contact areas, and degreaser which is a heavy-duty chemical for greasy areas such as ovens, grills, fryers, floors, extraction systems, etc.
- During the diarrhoea phase hygiene should be scrupulous and food handling avoided. It is during this time that it is possible to pass the infection on to another person. As a result, food handlers that have become infected must stay away from work for 48 hours after they are clear of symptoms.
- Ensure that hands are washed thoroughly before preparing foods, and after using and cleaning the toilet.



**Keep any children suffering from vomiting or diarrhoea off school, playgroup, nursery and swimming for at least 48 hours after they are completely well.**